From pattern to practice: evaluation of a design pattern fostering trust in Virtual teams

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Abstract: In this paper the use of a design pattern fostering trust in mediated collaborative settings is described in the case of an European Virtual Seminar. Implementation experiences with and effects of the use of the design pattern are reported.

Introduction

Recently the field of computer science recognised the idea that findings from domains of psychology and sociology can be important for the design of group systems supporting Computer Supported Collaborative Learning (CSCL) and Working (CSCW). This acknowledgement caused the emerging stream of 'social informatics' (Preece, 2000) and the introduction of 'design patterns' as a vehicle to enhance interdisciplinary communication. A pattern is a 'description of a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over' (Alexander, 1977). The strength of a design pattern is that captures the essential bits of a "problem – solution"-dyad in a specific context, and presents it in such a way that it can be applied and adapted in different settings (Dearden, Finlay, Allgar, McManus 2000). A pattern aims to provide action-oriented and design-oriented information. This enables groupware designers to grasp the essence of a previously unknown idea of another domain in a relatively short period of time. Thus, patterns can mediate 'expert' expertise and help incorporate interdisciplinary ideas in the actual practice of systems design in order to improve the design.

Design patterns have been developed within several projects, e.g. E-LEN (2004), Patterns4Groupware (Schümmer, 2004). In these projects the main focus was on the identification and development of design patterns. Once a pattern has been developed, it has to be verified and evaluated. This can be done in different ways, e.g. through review by other practitioners (designers/developers) in so called pattern writing workshops, by implementation of the pattern in practise and measurements of its success (is it solving what it is meant to solve or is the typified problem still occurring?) or by evaluation of its use by novice designers. In this paper we report our experiences with the implementation of the pattern 'Provide personal identity information' in practice. This patterns is aimed at improving trust within mediated collaborative settings.

The context: European Virtual Seminar (EVS)

The European Virtual Seminar on sustainable development (EVS) aims to promote an international and multidisciplinary ICT mediated dialogue on sustainable development issues between students from different universities and colleges from all over Europe. In this seminar students are directly confronted with different views and opinions on sustainable development issues whilst solving a complex case. They work collaboratively on this case in groups of 4 people from different disciplines and universities and communicate via text (chat, forum). Their main product is a final advice for solving the problem in the case. Students don't know each other in advance and there is no budget to organise a face to face meeting. Although EVS has been running successfully for several years, some interaction problems sustain. One problem is that student don't start to communicate directly at the beginning of the project. We have tried our pattern on a group of (initially) 32 students in order to improve this initial communication.

The pattern: "Provide personal identity information"

The core of the pattern is (for a full description, see E-LEN (2004, Rusman):

Problem	People are not or very sporadic collaborating due to a lack of trust and lack of a mental image of other people they ought to be collaborating with.
Analysis	One of the conditions of successful collaboration is the feeling of trust, mutual accountability and common ground between the members of a group. Collaboration and cooperation is much less likely when dealing with an anonymous actor. To build this relationship of trust and understanding between people they need to get a feeling and a mental image of the kind of person they are collaborating with. One way to get such an estimate of the person you are dealing with is to provide personal identity information in the collaborative environment.
Solution	Provide static as well as dynamic information on personal identity.
Context	Applicable to synchronous and a-synchronous distributed interaction in a collaborative environment. Mainly aimed at designers and developers of electronic groupware environments. Especially necessary when people don't know each other in advance and there are no opportunities to organise one or more face-to-face meetings to get a mental image of people.

What was implemented?

We implemented a fairly simple form for the provision of personal identity information. We asked each participant of EVS to fill in a template with information about themselves. The information remained the same during the collaboration process (static).

They provided the following information in this template, called Personal Expertise Page (PEXPI): 'personal data' (photo, name, gender, birthday, university, city and country, contact information), 'about me', 'interests and hobbies', 'expectations of EVS', 'EVS availability', 'Expertise areas', 'Fields of interest', 'Learn and work experiences', 'Suggestions'. The PEXPI became an instrument in their collaborative environment.

What are the experiences?

The students were divided in two groups: students who had a PEXPI from the start and students who had it after 2,5 weeks. We questioned students via an electronic questionnaire on the perceived trustworthiness of their team members and the role of the PEXPI for collaboration. Additionally, we conducted telephonic interviews with 11 students asking them questions about their image of their fellow team members and about the PEXPI. In this paper we only report about the qualitative information from the telephonic interviews.

From these results, it seems that a PEXPI is especially helpful to form an image of the people in the beginning of a project, later on people form their image also based on the behaviour of people during project work. Several initial impressions of student report are:

- *"It helps me a bit to visualize the people. Otherwise it will just be a name on the email headings. A PEXPI make them more real" (student 1, 31.50)*
- *"It's[the PEXPI] the only idea that you have of your team members….It's the only way that you can get a kind of personal bond with them and see what they look like and to form an impression of what kind of person they are" (student 2, part 2, 19.37)*

These examples reflect the general tendency within the student interviews.

Conclusions

The pattern was easy applicable, due to it's action oriented nature. The context description made it possible to judge if this pattern would be suitable for this case. A pattern not only facilitates communication between experts, but also draws attention to the knowledge of an expert, thus increasing questions concerning educational design from teachers.

Although we don't have hard evidence that the application of this pattern increased interaction and participation, it seemed to have helped students to form an image of their fellow team members and to form initial interpersonal trust. As interpersonal trust is one of the factors positively influencing interaction, the pattern was, at least partly,

successful for practice. Further investigation on the effect of the PEXPI on perceived trustworthiness and participation will be needed.

References

Alexander, C., Ishikawa, S., & Silverstein, M. (1977). *A pattern language : towns, buildings, construction*. New York : Oxford University Press, 1977.

Dearden, A., Finlay, J., Allgar, L & McManus, B. (2002). *Using Pattern Languages in Participatory Design. Position* Paper at CHI2002 Patterns Workshop. Available at http://www.welie.com/patterns/chi2002-workshop/Dearden-CHIWorkshopPaper.pdf

E-LEN project (2004). [Available online]: http://www2.tisip.no/E-LEN/

Preece, J.(2000). *Online communities. Designing usability, supporting sociability*. Chichester: John Wiley & Sons, LTD.

Schümmer, T (2004). *Patterns 4 Groupware Swik*i. Retrieved April 22, 2004, from http://wwwpi6.fernuni-hagen.de:8080/gw-patterns

Acknowledgments

We would like to acknowledge and thank Ron Cörvers for his collaboration within the European Virtual Seminar and for his open mind in general. We also gratefully acknowledge the contribution of the COOPER Project, that is funded by the European Commission's 6th Framework Programme, priority 2 IST. Contract no.: 027073 (www.cooper-project.org) and which has part-funded this work.